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291 ~~MULTIPLE SELECTION OF DIGITALLY STORED OBJECTS AND  
CORRESPONDING LINK TOKENS FOR SIMULTANEOUS PRESENTATION~~

PRIORITY NOTICE

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BACKGROUND OF THE INVENTION

15 Field of the Invention

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20 The present invention is related to the multiple selection of digitally presented and digitally stored objects (starting objects), and the link-tokens linking the objects to additional information data, related data entry or transaction mechanisms (destination objects) pertinent to each selected starting object, for simultaneous presentation and examination of the selected starting objects with their associated linked destination objects/information. The present invention further relates to an organized array presentation for graphical thumbnails. Graphical thumbnails are small images that represent objects frequently used in on-line or other viewable recording media (such as CD ROM) to represent the objects that are best represented by the image. Additionally,

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the present invention provides for sub-framing, which allows intelligent partitioning of information associated with an object.

#### Description of Related Art

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5 The application of hyper text mark up language (HTML), dynamic HTML, scripting languages, such as Java, Common Gateway Interface (CGI), Practical Extraction and Report Language (PERL), Visual Basic Script Language, VBScript, and derivatives thereof, other languages, markup languages, or metalanguages, such as the Standard Generalized Markup Language (SGML -ISO 8879), extensible Markup Language (XML), Cascading Style Sheet (CSS), Jave, Javascript, Java Speech Markup Language (JSML),  
10 and ActiveX allow the static and dynamic presentation and linking of computer stored objects (texts, graphics, icons, parts, items, lists, audio and video segments, etc.) from a container, i.e., file, of objects to related information and/or other objects and containers via a software link token. A link token is an addressing pointer, pointing to the memory location of the linked destination). A link token is usually represented by a textstring, an  
15 underlined textstring, a bullet in front of a textstring, a color change of a text string, a graphical icon or thumbnail, an "index finger hand" that appears when the cursor is placed on an object that has an embedded link-token, or the like. A typical web page can contain numerous link-tokens, but only one link-token can be evoked at a time. When a link token is selected and evoked, for example, by clicking a computer "mouse" button while resting  
20 the cursor on the object or token on the computer screen, the destination object, i.e., a webpage that is linked by the link-token, is brought forth from the database or memory bank in the connected storage media and/or networked computers and storage media,

5 sub A4 7 addressed by the evoked link token, and presented for viewing or examination by the browser, i.e., the human, device, or computer software that evoked the link-token.

5 sub A5 7 However, on conventional web sites, selecting the starting object and its associated link-token from a segment of media (e.g., a page of graphics and texts, a list of parts, a segment of video or audio recording) where many objects and link-tokens are present can only be performed one link at a time. When a particular link-token is evoked by clicking the left button of the mouse (a computer input device) while the cursor is resting on the link-token, the destination object is brought forth for viewing or examination from the recording media addressed by the link-token. When one wishes to evoke another link-token on the starting (previous) page, he/she must return to that page by "clicking" the "Back" tool-button on the upper-left corner of the browser screen, to find the next link-token to be evoked. This operation must be done one token at a time, in serial fashion. If more additional objects from the starting page, or segment of media, are of interest, one must return to the segment to make a single selection from the interested objects, and 15 evoke its associated link-token, again, repeatedly, one at a time. Moving forward and backward in segments of media or a series of web pages linked by the link tokens in this manner is a slow, awkward, labor intensive procedure. FIG. 1A shows a flow chart depicting this process.

20 sub A6 7 This procedure/methodology is especially awkward when there are many objects of interest in a particular starting segment, container, or page of media, and when there are multiple links of interest embedded again in the subsequent linked destination pages. The viewing human or examination devices are often taken several addressing steps away from the starting segment or page, such as an index list of items of interest, and are taken

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through multiple branches on a subsequent page. Such multiple branching causes the "Back" button pointer to loop between the two branches, making returning to the prior pages, or the starting page--the index list, for other interested links difficult. The URL (Universal Resource Locator) addresses of the prior pages and/or starting page must be remembered and entered in the "go to:" URL entry box on the browser screen to return to the starting page in such situation.

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FIGS. 2 through 8 show examples of pages from conventional web sites on which digitally stored starting objects are selected one at a time and their associated dynamically linked destination objects are displayed for viewing one at a time. One can only select and evoke a single link, out of the numerous links present on a web page. To select another object or link of interest from the page, one must return "Back" to the page from the path over which one has navigated in the forward direction in following the previously selected link. The color of a selected link or object does not change when placing the cursor on the link, nor when clicking on the link to select and evoke the link. The color change only manifests itself when after having selected and evoked the link, the browser returns "Back" to the page from which the link was selected and evoked.

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FIGS. 2A-2G show a first example of pages from a conventional web site, i.e., Excite™, on which only a single one of the luxury car listings shown in FIGS. 2A-2F containing 106 items at 20 item segments and six physical "title only" viewable pages can be both selected and displayed for viewing at a time as shown in FIG. 2G. Each underlined text string (an object, representing the "title" of a particular luxury car) has one link-token signified by the underline, with a single address pointer, pointing to a web page containing the detailed information associated with this particular luxury car. Only one single link (the

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underlined text (string title) can be selected/clicked to bring forth and view the detail information associated with this underlined "title", for example, the BMW 740iL from the first listing segment page. If a browser is interested in another three titles from the page, he must return "Back" to this listing segment page in order to select one of these three titles, and repeat the procedure three times. It may happen that one is viewing a page of information linked to a title on the sixth segment page of the listing, and is interested in comparing this title to another two titles in the third segment, and three titles in the first segment. To do so, one would need to print the current information pages, and then either remember the uniform resource locator (URL) (i.e., the address) of the third segment, or click the "Back" button three times on the browser, each time clicking a "continue" indicator in a pop-up dialog box that indicates you, i.e., the browser, are submitting information "unsecured". The user must then wait for the uploading of the "unsecured" address to the site-server, and the downloading of the addressed information from the site-server to the desktop computer, to finally reach the third segment to click/select one of the two interested titles on that segment. The user would then need to print the resulting information; click "Back" one time to return to the segment, and click/select the another one title of interest on this segment page; print the resulting information. The user would then click the "Back" button two times, each time waiting for each segment page to load, to reach the first segment page. Finally the user must then click/select one of the three interested titles, print the resulting information, click the "Back" button one time, wait for the content to load, and repeat the procedure another two times for the remaining two interested titles from the page.

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FIGS. 3A-3G show a second example of pages from a conventional web site, ebaY™, on which various categories of items including Star Wars Episode 1 posters and a set of four 650 watt sub woofer stereo speakers shown as underlined text strings on the ebaY™ Home Page in FIG. 3A can be selected and displayed at a time as shown in FIGS.

5 3B-3G. The invocation of a link-token (represented by the underline) associated with the particular object represented/indexed by the text string underlined, by clicking the left mouse button while the cursor is brought to the underlined text string title/index of the object, would bring forth the information page linked to this particular object represented by the underlined text string. Second stage links on this (brought forth) page would link to  
10 other additional pages containing further information related the particular "featured object." If one is interested in viewing information about another featured object on the ebaY™ Home Page, one must return to the ebaY™ Home Page from wherever the navigation has led the browser.

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15 As will be discussed further with regard to the present invention, the information associated with particular items, such as the items listed in FIGS. 3A-3B, is not "sub-framed" to allow a sensible array presentation of such information. Such an array feature would provide a comparison-shopping capability that is highly desirable. Yet, conventional systems and methods only enable information about items in a list such to be accessed one-at-a-time, and one-link-at-a-time. To view other interested items, one must return to  
20 scan the list over and over again, at times returning "Back" from many addresses away, which is an arduous, time consuming, and annoying process.

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Additional examples of pages from conventional web sites on which only a single item from a list of items can be selected and displayed for viewing at a time are shown in

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FIGS. 4A-4E which show camera equipment for sale on the ebaY™ web site, FIGS. 5A-5B which show home products for sale on the Yahoo!™ web site, FIGS. 6A-6G which show home design products for sale on the homeportfolio™ web site, FIGS. 7A-7K which show various tiffanysia jewelry items for sale on the ebaY™ web site, and FIGS. 8A-8F which show various news headlines from the Microsoft™/National Broadcasting Corporation™ (MSNBC™) news web site.

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To view multiple headlined news articles listed on the homepage of MSNBC.COM shown in FIGS. 8A-8B, for example, one must select one headline at a time, clicking forward to wherever the article leads through multiple interested reads/links on subsequent pages. To view another headline article, the browser must click backward as many times from where the previous article has taken him clicking forward, each time waiting for a page to download, until back to the headline page, to click another interested article on that page. If multiple branches are taken from a page subsequent to the headline page, or a page containing multiple links of interest, the browser is often lost in a loop, and cannot get back out of the loop to return to pages prior to the page from which multiple branching is taken.

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SUMMARY OF THE INVENTION

The present invention provides for the multiple selection of digitally stored and presented objects (texts, graphics, parts, lists, audio or video segments, etc.,) with their associated dynamic link-tokens (addressing pointers) from any starting container of digitally recorded media, such as pages of text or graphics, lists of items, parts, objects, symbols, icons, digitally recorded audio or video segments, and the simultaneous

presentation, displaying, viewing, and/or examination of the destination objects and/or information linked to these selected starting objects through their associated link-tokens. The present invention enables a far more efficient viewing, comprehension, comparing, examination of all information related to the multiple interested objects at once, without  
5 having to present and exam each interested object and its singly linked information (at times at depths of many levels of links), one at a time, and each time having to return "Back" to the address of the starting container or page, wait for the loading of the content of the container from the storage device, repeating for several cycles, until reaching the starting container/page to select another interested object and its link, again one at a time,  
10 and one level at a time.

*Sub A13*  
Additionally, the present invention provides for the organized array presentation of graphic thumbnails. Graphical thumbnails are frequently used in on-line or other viewable recording media (such as CD ROM) to represent objects that are best represented with their images. The invention dynamically presents a large collection of thumbnails in a two-  
15 dimensional array with a selectively adjustable number of columns and rows. This method of presentation allows easy viewing and examination, easy selection, and optimized utilization of screen/media real estate.

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Finally, the present invention provides for sub-framing. The sub-framing allows intelligent partitioning of information associated with an object. Dynamic scroll bars are  
20 used that allow the orderly arraying and presentation of "primarily textual" contents associated with a graphical content. The textual content may have a length and width that are incompatible to the optimal sizing for the graphical content. By sub-framing the graphical content and the textual content of differing nature or subject, the presentation

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can be arrayed in an orderly manner, using scroll bars to indicate the existence of additional content beyond the viewing area. Furthermore, this invention includes a feature that when the cursor is moved within a sub-frame area, indicating the browser's interest in the content of the sub-frame, the complete content of the sub-frame would be displayed on the computer screen, saving the browser effort that would otherwise be needed in scrolling the scroll bar to view the content contained beyond the viewing area.

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Furthermore, the present invention allows an array to present thumbnails of differing categories or sub-categories in each row (or column). For categories that contain more thumbnails than the screen viewing area can accommodate, the sub-framing of each such category would show horizontal (or vertical) scroll bar to indicate additional content beyond the viewing area. The additional content can be viewed by manually scrolling the scroll bar. The present invention includes an automated scrolling feature that is commanded by the browser using the command buttons.

#### BRIEF DESCRIPTION OF THE DRAWINGS

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FIG. 1 shows a flow chart illustrating the steps by which digitally stored objects are selected and their associated dynamically linked destination objects displayed for viewing on conventional web sites.

FIGS. 2A-2G show a first example of pages from a conventional web site, Excite<sup>TM</sup>.com, on which objects are both selected and displayed for viewing one at a time.

FIG. 3A-3G shows a second example of pages from a conventional web site, ebaY<sup>TM</sup>.com, on which objects are both selected and displayed for viewing one at a time.

FIGS. 4A-4E show a third example of pages from a conventional web site, ebaY™.com, on which objects are both selected and displayed for viewing one at a time.

FIGS. 5A-5B show a fourth example of pages from a conventional web site, Yahoo!™.com, on which objects are both selected and displayed for viewing one at a time.

FIGS. 6A-6G show a fifth example of pages from a conventional web site, homeportfolio™.com, on which objects are both selected and displayed for viewing one at a time.

FIGS. 7A-7K show a sixth example of pages from a conventional web site, ebaY™.com, on which objects are both selected and displayed for viewing one at a time.

FIGS. 8A-8F show a seventh example of pages from a conventional web site, MSNBC™.com, on which objects are both selected and displayed for viewing one at a time.

FIGS. 9A-9E show a first exemplary embodiment of pages from a web site on which multiple objects are both selected and simultaneously displayed for viewing using the system and method according to the present invention.

FIGS. 10A-10D show a second exemplary embodiment of pages from a web site on which multiple objects are both selected and simultaneously displayed for viewing using the system and method according to the present invention.

FIGS. 11A-11C shows a third exemplary embodiment of pages from a web site on which multiple objects are both selected and simultaneously displayed for viewing using the system and method according to the present invention.

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FIGS. 12A-12E shows a fourth exemplary embodiment of pages from a web site on which multiple objects are both selected and simultaneously displayed for viewing using the system and method according to the present invention.

FIG. 13 show flow chart illustrating the steps by which digitally stored and presented starting objects and links are multiply selected and their associated dynamically linked destination objects retrieved and presented simultaneously according to the present invention, respectively.

FIG. 14 shows an automated scrolling thumbnail array feature of the present invention, with rows presenting thumbnails of categories of product and a column representing another category at the right side of the page.

#### DETAILED DESCRIPTION OF THE EMBODIMENTS OF THE INVENTION

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Described is a method and apparatus for the multiple selection of digitally stored and presented starting objects from a starting container, e.g. a web page, and the link-tokens of each selected object for simultaneous presentation and examination of the selected objects with their associated linked objects and information. Further described is a method and apparatus for an organized array presentation for graphical thumbnails. Additionally described is a method and apparatus for sub-framing, which allows for the intelligent partitioning of information associated with an object. In the following description, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be apparent, however, to one of ordinary skill in the art that the present invention may be practiced without these specific details. In

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other instances, well-known architectures, steps, and techniques have not been shown to avoid unnecessarily obscuring the present invention.

5 The multiple selection of digitally stored and presented objects (texts, graphics, lists, audio or video segments, etc.,) with their associated dynamic link-tokens (addressing pointers) from any container of digitally recorded media, such as pages of text or graphics, lists of items, parts, objects, symbols, icons, digitally recorded audio or video segments, and the simultaneous presentation, displaying, viewing, and/or examination of the destination objects and/or information linked to these selected starting objects through their associated link-tokens, enable a far more efficient method for viewing, 10 comprehending, comparing, and examining all information pertinent to these interested objects. This is in contrast to the prior art, where each interested object is selected one at a time, and its sole link token invoked one at a time, at times at depths of several levels of links, to present and exam each interested object and its linked information, one object at a time and one link at a time, and returning by clicking the "Back" button multiple times to 15 the URL address of the starting container/page, where the indices and links to other interested objects reside. Each forward or backward click is compounded by having to wait for the loading of the content of the associated page from the remote storage device.

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FIGS. 9A-9E show a first exemplary embodiment of the present invention in which rugs from a list of rugs shown in FIGS. 9A-9B can be selected so that the dynamically 20 linked associated information pertaining to the selected rugs is simultaneously displayed for viewing as shown in FIGS. 9C-9E. This enables multiple rugs to be simultaneously viewed and examined at the same time, side-by-side.

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FIGS. 10A-10D show a second exemplary embodiment of the present invention in which multiple luxury cars from a list of luxury cars shown in FIGS. 10A-10B can be selected so that the dynamically linked associated information pertaining to the selected cars is simultaneously displayed for viewing as shown in FIGS. 10C-10D. This enables  
5 multiple information regarding the selected cars to be simultaneously viewed and compared at the same time, side-by-side.

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Graphical thumbnails are frequently used in on-line or other viewable recording media (such as CD ROM) to represent objects that are best represented by an image. Such objects include products, such as furniture, painting, rugs, and parts catalogs, just to name  
10 a few examples. In the prior art, graphics thumbnails are used either in a linear fashion as shown in FIGS. 6D-6G, random as shown in FIGS. 7A-7H, or semi-random. However, with reference to FIGS. 9A-9F, the present invention dynamically presents a large collection of thumbnails in a two-dimensional array with a selectively adjustable number of columns and rows. This method of presentation allows easy viewing and examination, easy  
15 selection, and optimized utilization of screen/media real estate.

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With reference to FIGS. 9D-9F and 10C-10D, sub-framing allows intelligent partitioning of information associated with an object. The dynamic scroll bars allow the orderly arraying and presentation of "primarily textual" contents associated to a graphical content. The textual content may have a length and width that are incompatible to the  
20 optimal sizing for the graphical "sub-frame."

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According to an embodiment of the present invention, the multiple selection mechanism, for example, can be effected/represented by a check box associated with each "underlined" object, as shown in FIGS. 9A-9C and 10A-10B. However, this mechanism

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can also be implemented by changing the color of the link-token (an underline, a bullet, a dot, or any symbol representing the link-token), wherein the link-tokens are a first color before being selected, change to a second color when they are selected, and are a third color when the browser "returns back" to the list of link tokens from the simultaneously displayed associated destination objects to select additional link-tokens. The third color differentiates those link-tokens whose associated destination objects have been simultaneously displayed from those link-tokens whose associated destination objects have not been simultaneously displayed. A single click by a mouse, for example, represents select, and the color of the selected token changes, whereas a double click of the input device represents submit, and all destination objects linked through the selected tokens are brought forth with the double-click. Another way to accomplish this mechanism is to click left button of the mouse while holding down the right button to select. The link-token selected changes color, and a click of the left button without holding down the right button represents "submit" to bring forth the linked destination objects.

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In one embodiment of the present invention, destination containers are used, wherein each container contains one graphic file, one text file, and one frame with multiple objects and multiple link-tokens, each represented as a separate "internal," or "sub" frame with dynamic scroll bars. However, it will be appreciated by those of ordinary skill in the art that the destination object linked to a selected object through the link token can be an object, multiple objects, a container containing multiple objects, or multiple containers containing multiple objects of various and differing media. The graphics file portion, for example, can contain multiple links to a set of multiple photographs taken from different angles, a video, an audio description, a music segment, or another textual description, or

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an actionable link to forward the photograph to a friend or a relative. Selection and invocation of such a link may spawn a "process" with a separate "pop-up" frame or window, while retaining the "parent" window, or advance the original "parent" window to the uniform resource locator (URL) of the object to which the invoked link-token points.

- 5 The sub-framing and dynamic scroll bars allow the orderly arraying and presentation of "primarily textual" contents of varied length and width that maybe incompatible to the optimal sizing for the graphics frame.

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In the embodiment of the present invention shown in FIGS. 10A-10D, multiple car titles and their links are selected from a list. The selections are submitted to retrieve and present the multiple destination objects (in this case, a photograph of the car in one subframe, its textual description in a another subframe, and an actionable and informational subframe). Each group of destination objects is associated with each starting object (a selected car title) detailing information associated with each selected title. There is no limitation to the size of the list, the number of selections, the size, content, and number of fields of each destination object, other than the limitation of practicality and the size of the storage device.

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- 20 Clicking on the photograph of the car, for example, may provide a separate window detailing enlarged photographs of multiple directional views, a panning and scanning video with sound or audio description of the car, the manufacturer's detailed specifications and drawings, etc. Clicking on the "description" frame may bring forth a menu for related articles, third party commentaries, appraisals, detailed maintenance and usage records, etc. Upon clicking the mouse button for a selection or multiple selections, a separate window pops up to display the selected items, for example, the appraisal and the

Sub-A26

detailed maintenance and usage records. Clicking on the "action/auction" frame, a menu shows possible selections of dealer records, information, customer feedback, bidding history, etc. A separate window to display selected items at this level may be spawned when a selection or multiple selections are made.

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An embodiment of the present invention further contemplates a two dimensional array presentation of graphical thumbnails of objects (paintings, furniture, rugs, lamps, jewelry, clothes, sculptures, machine parts, etc.) and the multiple selection of their associated links to simultaneously present multiple destination objects and object fields, such as detailed graphics (which can also be audio or video segments), a textual information window, and an actionable and informational window associated with each selected starting thumbnail. Similar secondary selections are possible from pop-up menus associated with each object frame as described above. As shown in FIG. 14, sub-framing the array allows a number of categories to be presented on the computer screen simultaneously; each row or column can represent a category, or a sub-category under a main category. When the content, i.e., number of thumbnails is so large that it can not be viewed in the screen viewing area, the present invention allows the sub-frame to contain a scroll bar to indicate more content beyond the viewing area of the screen in the row or column. An embodiment of the present invention facilitates the automated scrolling of each row or column presented in a sub-frame.

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FIGS. 11A-11C show a third exemplary embodiment of the present invention in which multiple news headlines from a list of news headlines shown in FIG. 11A can be selected so that the dynamically linked associated news stories are simultaneously retrieved and displayed for viewing as shown in FIGS. 11B-11C. This enables multiple

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headlines to be simultaneously retrieved, viewed and read at the same time, side-by-side. Although in the embodiment shown the associated news stories are displayed in three columns, any number of columns can be used. In the embodiment shown, if more than three headlines are selected, then the news stories associated with fourth, fifth and sixth  
5 headlines selected will appear vertically below (or horizontally next to) the news stories for the first, second and third headlines selected and can be viewed for reading by vertically scrolling down (or horizontally scrolling to the right of) the computer screen. The automatic scrolling feature of the invention scrolls the content for the browser when the browser moves the cursor beyond the screen toward the bottom (for vertical scrolling  
10 down beyond the current screen), or to the right (for horizontal scrolling to the right of the screen). For optimized interface with human eyes, each successive headline selected is displayed in three columns of associated news stories in the same manner as just described.

Sub A29  
15 FIGS. 12A-12E show a fourth exemplary embodiment of the present invention in which multiple stocks from a list of stocks shown in FIG. 12A can be selected so that the dynamically linked associated graphical, e.g., charts, and alphanumeric, textual, or audio information (analytical, numerical, and competitive data and analysis, news, reports, etc.) are simultaneously displayed for viewing as shown in FIGS. 12B-12E. This enables information regarding the selected stocks to be simultaneously retrieved, viewed and  
20 compared at the same time, side-by-side. When a first one of the simultaneously displayed charts, for example one of the charts shown in FIG. 12B, is selected using a computer input device such as, by clicking a computer mouse while pointing to the chart, the selected chart is made larger than the other simultaneously displayed charts as shown in

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FIG. 12C. More detailed numeric data can be shown along with the enlarged chart in the enlarged area available. When a second one of the simultaneously displayed charts is selected using the input device, the first chart returns to its original smaller size which is the same as all of the other simultaneously displayed charts and the second chart is made larger than the other simultaneously displayed charts.

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FIG. 13 shows a flow chart illustrating the steps by which multiple digitally stored and presented objects are selected and their associated dynamically linked destination objects retrieved and displayed for viewing according to the present invention.

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FIG. 14 shows the sub-framing feature of the present invention which allows a number of categories with a large number of objects within each category to be presented on the computer screen simultaneously. Each row or column can represent a category, or a sub-category under a main category. When the content, i.e., number of thumbnails, is more numerous than can be accommodated in one screen viewing area, the present invention allows the sub-frame to contain a scroll bar to indicate more content beyond the viewing area of the screen in the row or column. The current invention also facilitates the automated scrolling of each row or column presented in a sub-frame. The scrolling of the thumbnail can be selectively started or stopped. The speed of the scrolling of the thumbnails can be selectively increased or decreased. The thumbnails can be scrolled either vertically or horizontally.

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The method and apparatus described herein has many applications, including, but not limited to, 1) storing, selecting, presenting, viewing, examining, and navigation of electronic commerce categories, items, merchandise, and services, 2) storing, selecting, presenting, viewing, and navigation of digital recording of software, equipment manuals,

manufacturing, repair, and maintenance instructions, products/parts catalogs, and 3) storing, presentation, reading, listening, viewing, and navigation of digitally recorded books, journals, dictionary, encyclopedia, news, and audio, video, or any other digitally recorded media.

5           The present invention is implemented using software which can be written in many computer languages. The present invention can be used on a global or local computer network, on a personal computer, on viewable storage media such as a CD ROM, on a wireless telephone, on a wireless personal assistant such as a Palm Pilot®, or on any type of wired or wireless device that enables digitally stored information to be viewed. Also, information displayed and viewed using the present invention can be printed, stored to other storage medium, and electronically mailed to third parties.